

In the Claims:

Please amend the claims as follows:

1. (original) An apparatus for detecting the hydrogen content of an object (101),

wherein the apparatus (100) comprises

- a neutron source (103) that emits fast/energy-rich neutrons;
- a detector device (102; 102a; 102b) for detecting thermal neutrons;
- a moderator (104; 104'; 104'') that brakes and reflects neutrons upon collision;

characterised in that

- said detector device comprises
 - o a light-emitting unit (102b) that emits light in case of a nuclear event/reaction with a thermal neutron; and
 - o a light-registering unit (102a) that emits an electric pulse/an electric signal (106) when a flash of light is detected;
- said moderator (104', 104'') is a light-conductive unit arranged between said light-emitting unit (102) and said light-registering unit (102a); and
- said neutron source (103) is embedded in said moderator (104').

2. (original) An apparatus according to claim 1, characterised in that said light-emitting unit (102b) is a scintillator and that said light-registering unit (102a) is a photo-multiplier (PM) or a photo-diode.

3. (currently amended) An apparatus according to ~~claims 1-2~~ claim 1, characterised in that said source (103) is arranged essentially in proximity of or about/in the centre of the face of said moderator (104', 104'') that adjoins the light-emitting unit (102b).
4. (currently amended) An apparatus according to ~~claims 1-3~~ claim 1, characterised in that said light-conductive unit (104') is configured essentially with a face that adjoins said light-emitting unit (102b) and having a relatively smaller face adjoining a detection face (107) of said light-registering unit (102a).
5. (currently amended) An apparatus according to ~~claims 1-4~~ claim 1, characterised in that said light-conductive unit (104'') is configured for emitting light conducted from said light-emitting unit (102b) to the light-registering unit (102a) essentially perpendicular to a detection face (109) of the apparatus (100).
6. (currently amended) An apparatus according to ~~claims 1-4~~ claim 1, characterised in that said light-conductive unit (104'') is configured for emitting light conducted from said light-emitting unit (102b) to the light-registering unit (102a) essentially in parallel with a detection face (109) of the apparatus (100).

7. (currently amended) An apparatus according to ~~claims 1-6~~ claim 1, characterised in that the apparatus further comprises an electric circuit (105) connected to said detector device (102; 102a), wherein said circuit (105) is configured for generating a signal (108) that represents an estimated amount of hydrogen, water and/or humidity content on the basis of the electric signal (106) from said light-registering unit (102a).

8. (original) A method of detecting the hydrogen content (101) of an object comprising the steps of:

- emitting fast/energy-rich neutrons from a neutron source (103);
- detecting thermal neutrons by means of a detector device (102; 102a; 102b);
- braking and reflecting neutrons by collision of a moderator (104; 104'; 104''),

characterised in that the method further comprises:

- emitting light by a light-emitting unit (102b) in the event of a nuclear event/reaction with a thermal neutron;
- emitting an electric pulse/an electric signal (106) by a light-registering unit (102a) upon recording of a flash of light;
- conducting light from said light-emitting unit (102b) to said light-registering unit (102a) by a light-conductive unit arranged between said light-emitting unit (102b) and said light-registering unit (102a); of which said moderator (104'; 104'') is the light-

conductive unit, where said neutron source (103) is embedded in said moderator (104').

9. (original) A method according to claim 8, characterised in that said light-emitting unit (102b) is a scintillator and that said light-registering unit (102a) is a photo-multiplier (PM) or a photo-diode.
10. (currently amended) A method according to ~~claims 8-9~~ claim 8, characterised in that said source (103) is arranged essentially in proximity of or around/in the centre of the face of the moderator (104', 104'') that adjoins the light-emitting unit (102b).
11. (currently amended) A method according to ~~claims 8-10~~ claim 8, characterised in that said light-conductive unit (104') is configured essentially with a face that adjoins said light-emitting unit (102b) and having a relatively smaller face adjoining a detection face (107) of said light-registering unit (102a).
12. (currently amended) A method according to ~~claims 8-11~~ claim 8, characterised in that said light-conductive unit (104'') is configured for emitting light conducted from said light-emitting unit (102b) to the light-registering unit (102a) essentially perpendicular to a detection face (109).

13. (currently amended) A method according to ~~claims 8-11~~ claim 8, characterised in that said light-conductive unit (104") is configured for emitting light conducted from said light-emitting unit (102b) to the light-registering unit (102a) essentially in parallel with a detection face (109).
14. (currently amended) A method according to ~~claims 8-13~~ claim 8, characterised in that the method further comprises generation, in an electric circuit (105) connected to said detector device (102; 102a), of a signal (108) representing an estimated amount of hydrogen, water and/or humidity content, wherein said generation is performed on the basis of the electric signal (106) from said light-registering unit (102a).